Proposal Reviews

#202: Hydrogeomorphic Model for New Inset Floodplain Formation, Mokelumne River Downstream of Camanche Dam

University of California, Davis

Research and Restoration Technical Panel Review	
Delta Regional Review	
External Scientific Review	#1 #2
Prior Performance/Next Phase Funding	
Environmental Compliance	
Budget	

Research and Restoration Technical Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Research and Restoration Technical Panel Review Form

Proposal Number: 202

Applicant Organization: University of California, Davis

Proposal Title: Hydrogeomorphic Model for New Inset Floodplain Formation, Mokelumne River Downstream of Camanche Dam

Review:

Please provide an overall evaluation summary rating:

Superior: outstanding in all respects;
Above Average: Quality proposal, medium or high regional value, and no significant administrative concerns;
Adequate: No serious deficiencies, no significant regional impediments, and no significant administrative concerns;
Not Recommended: Serious deficiencies, significant regional impediments or significant administrative concerns.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Superior	**The external scientific reviewers thought this was a weak proposal that fails to advance the science of floodplain dynamics. It does not truly formulate a model for floodplain development; rather it provides some empirical relationships of floodplain elevation and inundation frequency. The regional review panel rated this as medium, which suggests studies of inset floodplain dynamics are important to decision makers, and studies should be pursued in the future in a more rigorous fashion.**
-Above average	
-Adequate	
XNot recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

   The goals of this proposal are to identify and investigate new inset floodplains downstream of the Camanche Dam, and develop a hydraulic model for new floodplain formation. The hypothesis to be tested is that a new inset floodplain formation is in equilibrium with the post-flow regulation hydrologic and geomorphic conditions. A second hypothesis to be tested is that new inset floodplains form at a lower elevation than the historic floodplain elevation. The reviewers did not think these were useful hypotheses or that the authors proposed strong tests of the hypotheses. Instead, the project will result simply in a description of inset floodplains and associated flood stages.

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are

the proposed performance measures adequate for measuring the project's success?

Reviewers generally found the proposal to be feasible. The authors have considerable expertise in this field, which increases the likelihood to succeed.

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

   The project supports DR-2 Restore and rehabilitate floodplain habitat by providing some basic information on channel geometry and flood stages. There would be mild academic interest in the empirical model produced by this work. However, no work is suggested to link the state of the habitat, its value to fish and other biota, and possible restoration actions (or even identifying restoration needs). Fisheries biologists are listed as co-authors, but no fisheries biology work was proposed, and their involvement in the research was unclear. The usefulness of the products for implementation of specific restoration actions was unclear. There will be no predictive power in the empirical relationships resulting from this project. There was no description of the 1-D model that would be used. No performance measures were listed, and it was impossible to determine how the success of this project would be judged.

4. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The costs seemed high for this work, in terms of the amount of time needed to produce the products listed.

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

   The regional panel ranked this proposal as medium. They thought it was a solid project, but not essential. They noted the partnership with EBMUD and participation in MCWA. The regional panel, as opposed to the external reviews, thought the results of this project would be directly applicable to future large-scale flood damage reduction and ecosystem restoration efforts in the lower Mokelumne River.

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

   Under Prior performance several problems with request for revision of standard contract terms were noted. This is a problem between UC Davis and CALFED, though, and not with the principal investigators. The researchers have been very professional and effective in meeting the goals of the project. No compliance or budget issues were identified.

Miscellaneous comments:

It would have been useful to include a clear definition of an inset floodplain, with a sketch or photograph showing the relationship of these inset floodplains with the historical floodplains.

Delta Regional Review:

Proposal Number: 202

Proposal Title: Hydrogeomorphic Model for New Inset Floodplain Formation, Mokelumne River Downstream of Camanche Dam

Overall Ranking: **-**Low **X**Medium **-**High

Provide a brief summary explanation of the committee's ranking:

This is a solid project, but isn't essential.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   Project has a high probability of success. Applicant has successfully completed similar applied research projects in other Central Valley rivers and is working closely with EBMUD.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

   XYes **-**No

   How?

   Project supports Draft Stage I Implementation Plan DR-2 Restore and rehabilitate floodplain habitat by providing scientific basis for floodplain management planning and alternative evaluation (cf. Strategic Goal 4, floodplains and bypasses as ecosystem tools. The project would also further efforts to restore natural production of anadromous fish and a variety of floodplain or riparian-dependent species.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

   XYes **-**No

   How?

   Project helps implement the CVPIA Anadromous Fish Restoration Program and the Lower Mokelumne River Comprehensive Management Plan developed under FERC Agreement 2914. Because of EBMUDs and UC-Davis involvement in the Corps of Engineers Mokelumne-Cosumnes Comprehensive Plan process, the results of this project would be directly applicable to future large-scale flood damage reduction/ecosystem restoration efforts in the lower Mokelumne River.

4. Does the project adequately involve local people and institutions?

   XYes **-**No

   How?

   Partnership with EBMUD. EBMUD owns and manages riparian lands downstream of Camanche Dam and has obtained permission to access property from other local riparian landowners. Participation in MCWA.

Other Comments:

X

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **202**

Applicant Organization: **University of California, Davis**

Proposal Title: **Hydrogeomorphic Model for New Inset Floodplain Formation, Mokelumne River Downstream of Camanche Dam**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

Joan Florsheim worked for me part-time as a student technician in 1984 when she was a graduate student at Humboldt State University.

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**Although there would be some academic interest in the controls on inset floodplain formation, the project hypotheses are too broad to be of much use, and the project results don't seem to have a direct applicability to restoration efforts and planning.**
-Good	
XPoor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The goals of this proposal are to identify and investigate new inset floodplains downstream of the Camanche Dam, and develop a hydraulic model for new floodplain formation. The hypothesis to be tested is that a new inset floodplain formation is in equilibrium with the post-flow regulation hydrologic and geomorphic conditions. A second hypothesis to be tested is that new inset floodplains form at a lower elevation than the historic floodplain elevation. These hypotheses are not especially useful, in that the dam has been in place since 1963, and channel conditions would be expected to be in equilibrium after 40 years of a new flow regime. But, if the floodplains were not in equilibrium and have continued to change with time, how would that be detected and how would that affect management of the channel and

be incorporated into restoration planning? It seems that instead of a true test of hypotheses, the project will collect field measurements and relate them to flow stage.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   The project falls under ERP priorities for restoration and rehabilitation of floodplain habitat in eastside tributaries. It is consistent with the effort to improve anadromous fish habitat degrading by limiting factors, including the quality of accessible stream channel and riparian habitat. The link of this project with improving anadromous fish habitat is not clear. Although the project falls under the general justification of improving floodplain and riparian habitat, its specific use in designing restoration projects is unclear. Another argument is unclear: on page 8: "The lack of frequently flooded floodplains on the lower Modelumne River is noted as a fundamental habitat limitation..." This has been noted and tested by whom? And this statement contradicts the statement of page 7 that suggests the new inset floodplains are inundated more frequently than the historic floodplain.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The basic approach is straight forward. Channel cross sections from 1973 will be resurveyed. Current and historical air photos will be analyzed, and hydrologic records will be examined. High water marks from the 1969 and 1970 floods will be used. It seems that there should be more recent data as well, at least from gaging station field notes. Field reconnaissance would be used to select a pilot study for more detailed work, which would be used in formulating an empirical model of floodplain development at that site.

   Sediment transport will be assessed in Murphy Creek, prior to dam removal. The project suggests the dam will be removed (when?). If the dam is removed, how much sediment will be released, how will flows change and how will these changes affect the equilibrium' inset floodplains that formed under conditions with the dam in place?

   The Mike11 model will be used to assess hydraulic conditions. No description of the model, its range of applicability, its data requirements or underlying assumptions are listed. How tranferable is it from the Consumnes to the Mokelumne? The model will be used to map potential new' floodplains. It is unclear why, if the regulated flow conditions have existed for several decades, why these potential sites haven't already formed floodplains.

   Guidelines would be formulated to specify the range of flow magnitudes needed to inundate new inset and the historic floodplain. Because the Mokelumne is regulated, it was unclear how flexible the dam operations would be, and how important it is to inundate a historic floodplain when the natural flooding regime will not be restored.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   There is a high feasibility of being able to collect the field data, resurvey historic cross sections, and formulate an empirical relationship between flow and floodplain elevation.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   How do we judge the success of this project? No specific performance measures are listed. There is no mention of peer review of the products, or a description of how the models will be tested. How will the models be calibrated? What will the test cases be? Will there be a sensitivity analysis?

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   The products will be a map of new inset floodplains, a description of historic channel changes, estimated sediment supply downstream of the Camanche Dam, and an empirical model that relates new floodplain formation with flow stage. Recommendations for restoration planning are notably absent.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   The applicants are highly qualified to conduct this work. They have research experience in the Consumnes basin, and have expertise in fluvial geomorphic research.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The research scientist and research assistants would work half-time for three years on this project. The costs are reasonable for that time commitment, but the time involved seems high for the value of the products to be produced. EDMUB surveyors would conduct surveys for $50,000. Without knowing the specifics of what they would survey and over what spatial scale, I cannot judge the cost/benefits of this task. As presently described, the scope of the project sounds more like a masters thesis that could be funded for about $50,000.

Miscellaneous comments:

On the conflict of interst page, only Joan Florsheim and Jeffrey Mount were listed as applicants, with no one else helpeing with proposal development. But, on the title page, two fisheries biologists from EBMUD were listed as participants/authors of the proposal.

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **202**

Applicant Organization: **University of California, Davis**

Proposal Title: **Hydrogeomorphic Model for New Inset Floodplain Formation, Mokelumne River Downstream of Camanche Dam**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

<u>Excellent:</u> outstanding in all respects;
<u>Good:</u> quality but some deficiencies;
<u>Poor:</u> serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**The title and problem statement of this proposal is misleading in the sense that a predictive model of the channel geometry as a function of flow and sediment supply is forthcoming. A simple empirical analysis to produce the flow/stage relations at newly formed inset floodplains is described as the deliverable.**
-Good	
XPoor	

1. **<u>Goals.</u>** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The goal (stated objective) appears to be to fill in the knowledge gap associated with relating stream flow and sediment supply below a dam to the formation of inset floodplains at elevation below the historical floodplain. This to be accomplished by developing a hydrogeomorphic model for the new inset floodplain. The stated principle hypothesis to be tested is that new inset floodplain formation is in equilibrium with post-flow regulation hydrologic and geomorphic conditions. This hypothesis generally well accepted. The proposal fails to describe any tests but simply to describe the new channel with its inset floodplain and the flood stages that would inundate the inset floodplain as well as the historical floodplain.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   I fail to see the merits of describing the obvious-that a new floodplain has formed at a lower level than the historic floodplain. This is not a rigorous research project involving stated hypotheses and study designs for testing the hypotheses.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The approach appears entirely empirical and will quantify the relation of river stage to inundation of the new inset floodplain as well as the historical floodplain. This information may be useful but does not address the question of enhancing the habitat from the present state (with its new inset floodplain) towards the historical (but never back to pristine) but managed flow releases and sediment augmentation.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The monitoring and analyses utilizing hydraulic simulations to determine river stage necessary to inundate the inset floodplain is documented certainly feasible. The stated hydrogeomorphic model as presented would have no predictive power but is simply a descriptive model of present conditions under an altered flow and sediment regime.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   [not completed]

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   A quantitative description of the present newly form channel and inset floodplain would be useful. However no work is suggested as to quantifying the state of the habitat and interpretation of its value to the fish population and other biota. If a CalFed goal is to improve the habitat conditions in the lower Mokelumne River then management to significantly enhance the present conditions seems evident. This study dose not seem likely to provide such guidelines.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   The investigators are certainly capable of carrying out the empirical studies needed to describe the present geomorphology. A mystery is the listing of fishery biologist as co-investigators with not description of any habitat or fish population evaluations.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   Appears high for the described work.

Miscellaneous comments:

None

Prior Performance/Next Phase Funding:

New Proposal Number: 202

New Proposal Title: Hydrogeomorphic Model for New Inset Floodplain Formation, Mokelumne River Downstream of Camanche Dam

1. Prior CALFED project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   ERP 99-N06 ? Linked Hydrogeomorphic Ecosystem Models to Support Adaptive Management

2. Prior CVPIA project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   N/A

3. Have negotiations about contracts or contact amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

   -Yes **X**No **-**N/A

   If no, please explain any difficulties:

   The Office of Vice Chancellor for Research at UC Davis has requested numerous and repeated requests for revisions of the standard contract terms. Only a few of these issues were raised in the PSP process. Reconciling these issues has required extensive staff time for CALFED and other State agencies. This repeated negotiation has resulted in a delay of contract execution for up to 2 years.

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

   XYes **-**No **-**N/A

   If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

   XYes **-**No **-**N/A

   If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

   XYes **-**No **-**N/A

If no, please explain deficiencies:

UC Davis has had consistent difficulty communicating internally and externally regarding its fiscal documentation. Reconciling financial issues with UC Davis has proved very problematic. The financial situations raised by UC Davis have proved to be the most difficult within the NFWF managed CALFED contracts.

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

XYes **-**No **-**N/A

If no, please explain:

Other Comments:

The difficulties expressed above are limited to UC Davis campus only.

The Principal Investigators and other project researches have been very professional and effective in meeting the goals of the project.

Environmental Compliance:

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1. Are the legal or regulatory issues that affect the proposal identified adequately in the proposal?

   XYes **-**No

   If no, please explain:

2. Does the project's timeline and budget reflect adequate planning to address legal and regulatory issues that affect the proposal?

   XYes **-**No

   If no, please explain:

3. Do the legal and regulatory issues that affect the proposal significantly impair the project's feasibility?

   -Yes **X**No

   If yes, please explain:

Other Comments:

Budget:

Proposal Number: 202

Applicant Organization: University of California, Davis

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1. Does the proposal include a detailed budget for each year of requested support?

   XYes -No

   If no, please explain:

2. Does the proposal include a detailed budget for each task identified?

   XYes -No

   If no, please explain:

3. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs?

   XYes -No

   If no, please explain:

4. Are appropriate project management costs clearly identified?

   XYes -No

   If no, please explain:

5. Do the total funds requested (Form I, Question 17A) equal the combined total annual costs in the budget summary?

   XYes -No

   If no, please explain (for example, are costs to be reimbursed by cost share funds included in the budget summary).

6. Does the budget justification adequately explain major expenses?

   XYes -No

   If no, please explain:

7. Are there other budget issues that warrant consideration?

-Yes **X**No

If yes, please explain:

Other Comments: